KENWOOD

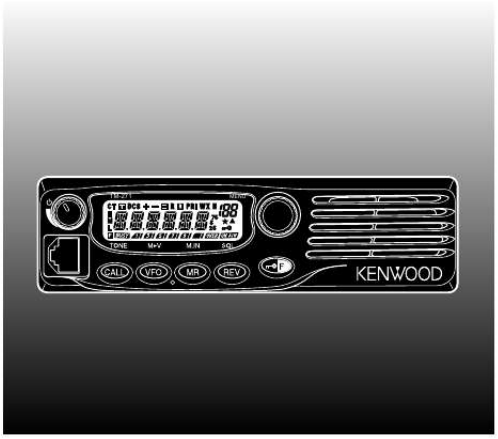
INSTRUCTION MANUAL

144 MHz FM TRANSCEIVER
VHF FM TRANSCEIVER

TM-271A

144 MHz FM TRANSCEIVER

TM-271E



KENWOOD CORPORATION

Manual abstract:

@@For example, each time you change the Menu No. @@Though user friendly, this transceiver is technically sophisticated and some features may be new to you. Consider this manual to be a personal tutorial from the designers. Allow the manual to guide you through the learning process now, then act as a reference in the coming years. KENWOOD believes that this product will satisfy your requirements on both voice and data communications. MARKET CODES K: E: Mn: The Americas Europe General (Where "n" represents a variation number.) The market code is printed on the barcode label of the carton box. Refer to the product specifications {pages 71, 72} for information on the available operating frequencies within each model. @@@@@@@@· Equipped with an easy-to-read large LCD with alphanumeric display capability. · The dedicated DATA connector is available for 1200 bps or 9600 bps Packet operation (E market models only).

· Free PC software (Memory Control Program) is available to program the frequency, signalling, and other settings of your transceiver. The MCP can be downloaded at: http://www.kenwood.com/i/products/info/amateur.html MODELS COVERED BY THIS MANUAL The models listed below are covered by this manual.

TM-271A: 144 MHz FM Transceiver TM-271A: VHF FM Transceiver TM-271E: 144 MHz FM Transceiver NOTICES TO THE USER One or more of the following statements may be applicable: FCC WARNING This equipment generates or uses radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made. INFORMATION TO THE DIGITAL DEVICE USER REQUIRED BY THE FCC This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can generate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: · Reorient or relocate the receiving antenna. · Increase the separation between the equipment and receiver. · Connect the equipment to an outlet on a circuit different from that to which the receiver is connected. · Consult the dealer for technical assistance. PRECAUTIONS Please observe the following precautions to prevent fire, personal injury, and/or transceiver damage: · · Do not attempt to configure your transceiver while driving; it is simply too dangerous. Be aware of local laws pertaining to the use of headphones/headsets while driving on public roads. If in doubt, do not wear headphones while mobiling. Do not transmit with high output power for extended periods; the transceiver may overheat.

Do not modify the transceiver unless instructed by this manual or other KENWOOD documentation. Do not expose the transceiver to long periods of direct sunlight nor place it close to heating appliances. Do not place the transceiver in excessively dusty, humid or wet areas, nor on unstable surfaces. If an abnormal odor or smoke is detected coming from the transceiver, turn OFF the power immediately. Contact a KENWOOD service station or your dealer. This transceiver is designed for a 13.8 V power source. Never use a 24 V battery to power the transceiver. · · · · · When condensation occurs inside the transceiver: Condensation may occur inside the transceiver when the room is warmed using a heater on a cold day or when the transceiver is quickly moved from a cold location to a warm location. When condensation occurs, the microcomputer and/or the transmit/receive circuits may become unstable, resulting in transceiver malfunction.

If this happens, turn OFF the transceiver and wait for a while. When the condensed droplets disappear, the transceiver will function normally. · i CONTENTS SUPPLIED ACCESSORIES ...

ible. MOBILE OPERATION The vehicle battery must have a nominal rating of 12 V. Never connect the transceiver to a 24 V battery. Be sure to use a 12 V vehicle battery that has sufficient current capacity. If the current to the transceiver is insufficient, the display may darken during transmission, or transmit

output power may drop excessively.
1 Route the DC power cable supplied with the transceiver directly to the vehicle's battery terminals using the shortest path from the transceiver. · If using a noise filter, it should be instae transceiver under these conditions. To antenna Feed line connector 5 ACCESSORY CONNECTIONS 1 Attach the supplied microphone hanger in an appropriate location using the screws included in the screw set. Microphone hanger EXTERNAL SPEAKER If you plan to use an external speaker, choose a speaker with an impedance of 8 . The external speaker jack accepts a 3.5 mm (1/8") mono (2-conductor) plug. We recommend using the SP-50B speaker. Microphone hanger screw (3 mm x 10 mm) Keypad serial data No Connection MIC, 600 impedance GND (MIC) PTT GND DC 8 V, 100 mA max No Connection MICROPHONE For voice communications, connect a 600 microphone equipped with an 8-pin modular plug into the modular socket on the front of the main unit. Press firmly on the plug until the locking tab clicks. PC CONNECTION To utilize the optional MCP-1A software, you must first connect the transceiver to your PC using an optional.

Programming Cable (via the microphone jack). The MCP-1A is free downloadable software available from KENWOOD at the following URL: http://www.kenwood.com/i/products/info/amateur.html Note: Ask your dealer about purchasing a Programming Cable. 6 CONNECTING TO A TNC (E MARKET MODELS ONLY) To connect an external TNC to the transceiver, use an optional PG-5A cable. The DATA connector on the rear of the transceiver mates with the 6-pin mini-DIN plug on this cable. Pin No. 1 2 3 Pin Name PKD GND PKS · GND Note: If the external TNC has a common pin for 1200 bps and 9600 bps data output, connect this pin to the DATA connector PR9 pin. Shorting the PR9 and PR1 pins will cause the TNC to malfunction.
Adjust the transceiver data communication speed (1200 bps or 9600 bps) as necessary {page 58}. If DC voltage is input to the PR1 pin, the external TNC may not function. If this problem happens, add a 10 µF capacitor between the PR1 pin and the TNC. Be careful with the polarity of the capacitor. 1 Function Packet data input TX data from TNC to transceiver Ground for PKD Packet standby · TNC can use this pin to inhibit the transceiver microphone input while transmitting packet signals.
Output of detected 9600 bps data (500 mVP-P, 10 k) 4 PR9 · Also functions as a common pin for 1200 bps and 9600 bps data output. 5 PR1 Output of detected 1200 bps data (500 mVP-P, 10 k) Squelch control output · · Inhibits TNC data transmitting while transceiver squelch is open. Prevents interference to voice communications on the same frequency. Also prevents retries. Output Level Open squelch: +5 V (High) Closed squelch: 0 V (Low) 6 SQC · 7 YOUR FIRST QSO Are you ready to give your transceiver a quick try? Reading this section should get your voice on the air right away.
The instructions below are intended only as a quick guide. If you encounter problems or there is something you would like to know more, read the detailed explanations given later in this manual. q Press [ ] (Power) briefly to switch the transceiver power ON. · A high pitched double beep sounds and a Power-on message appears momentarily. The various indicators and the current operating frequency appear on the LCD. · The transceiver stores the current parameters when it is turned OFF and automatically recalls those parameters the next time you turn the transceiver ON. 2 w Turn the Volume control clockwise, to the 9 o'clock position. qw TM-271 e e Turn the Tuning control to select a reception frequency. · You may further turn the Volume control to adjust the volume level of the signal. MENU r To transmit, hold the microphone approximately 5 cm (2 inches) from your mouth.

t Press and hold Mic [PTT], then speak in your normal tone of voice. y Release Mic [PTT] to receive. t y u Repeat steps r, t, and y to continue communication. 8 GETTING ACQUAINTED FRONT PANEL Note: This section describes only the main functions of the front panel controls. Explanations for functions not described here are provided in the appropriate sections of this instruction manual. Press [F] then press [MENU] to enter Menu Mode {page 18}. Turn to select: · Operating frequencies when in VFO Mode {page 15}. · Memory Channels when in Memory Recall Mode {page 30}. · Menu Nos. when in Menu Mode {page 18}.
· Scan direction while scanning {pages 27, 39, 47, 49}. 3 q TM-271 MENU w e CALL key Press to recall the Call Channel {page 35}. Press and hold for 1 second while in VFO Mode to begin Call/VFO Scan {page 43}. Press and hold for 1 second while in Memory Recall Mode to begin Call/ Memory Scan {page 43}. Press [F] then press [CALL] to activate the Tone {page 24}, CTCSS {page 46}, or DCS {page 48} function.
e r t y u q (Power) switch/ Volume control Press to switch the transceiver power ON or OFF {page 14}. Turn to adjust the level of the receive audio from the speaker {page 14}. r VFO key Press to enter VFO Mode {page 15}. In this mode, you can change the operating frequency using the Tuning control or Mic [UP]/[DWN]. Press and hold for 1 second while in VFO Mode to begin Band Scan {page 40}.
Press and hold for 1 second while in VFO Mode after programming a scan range to begin Program Scan {page 40}. w MENU button/ Tuning control Press to enter MHz Mode {page 16}. In this mode, you can change the operating frequency in 1 MHz steps using the Tuning control or Mic [UP]/[DWN]. Press and hold for 1 second while in VFO Mode to begin MHz Scan {page 41} or while in MR Mode to begin Group Scan {page 42}. 9 In MR Mode, press [F] then press [VFO] to transfer the contents of the selected Memory Channel to the VFO {page 33}. DISPLAY qwe r ty u i o !0 !1 t MR key Press to enter Memory Recall Mode {page 30}. In this mode, you can change memory channels using the Tuning control or Mic [UP]/[DWN].

Press and hold for 1 second while in Memory Recall Mode to begin Memory Scan {page 42}. Press [F], use the Tuning control to select the desired channel, then press [MR] to reprogram the Call Channel or a Memory Channel {page 29}. 3 !7 !6 !5 !4 !3 !2 y REV key Press to switch the transmit frequency and receive frequency when operating with an offset {page 23} or an odd-split Memory Channel {page 28}.

Press [F] then press [REV] and rotate the Tuning control to increase or decrease the squelch level {page 14}. q Appears when the CTCSS function is activated {page 46}. w Appears when the Tone function is activated {page 24}. e Appears when the DCS function is activated {page 48}. r Appears when the repeater shift function is activated {pages 23, 30}. (" " is not used on this transceiver.) t Appears when the Reverse function is activated {page 26}. u /F key Press and hold for 1 second to lock the transceiver keys {page 58}. Press momentarily to access the second functions of the transceiver keys. 10 y Appears when the Automatic Simplex Check (ASC) function is activated {page 26}.
u Appears when the Priority Scan function is activated {page 43}. i Appears when the Weather Alert function is activated {page 36}. (K market models only.) o Appears when narrow FM Mode is selected {page 60}. !0 Displays the frequencies, Menu settings, Memory name and other information.
!1 Displays the Menu No., Memory Channel number, and status {pages 18, 29}. !2 Appears when the displayed Memory Channel has data {page 29}. !3 Appears when the Key Lock function is ON {page 58}. !4 Appears when the Memory Channel Lockout function is ON {page 44}.
!5 Shows the strength of transmitted {page 15} and received {page 54} signals. indicates the squelch is open and the frequency is "busy". It also appears when the squelch is set to minimum {page 14}. If using CTCSS or DCS, it indicates the squelch is open due to a received signal that contains the same CTCSS tone or DCS code that is set in your transceiver. acts as an S-meter while receiving and an RF power meter while transmitting. indicates the transceiver is transmitting. !6 Appears when the function key is pressed. !7 H appears when high power transmission is selected and L appears when low power is selected {page 15}. ("M" is not used on this transceiver.) 3 11 REAR PANEL q w er MICROPHONE q w e r t y u i q 3 DTMF Microphone Microphone (KMC-30) q Antenna connector Connect an external antenna {page 5} here.

When making test transmissions, connect a dummy load in place of the antenna. The antenna system or load should have an impedance of 50 . Note: E market models use an N-type antenna connector while other models use an M-type (SO-239) connector. q PTT (Push-to-Talk) switch Press and hold to transmit. Release to receive. w DWN/ key w Data cable (E market versions only) Connect this cable to a TNC {page 7}. Press to lower the operating frequency, Memory Channel number, Menu Number, etc. Hold down to repeat the action. Also press to switch between values for functions with multiple choices. Press and hold Mic [PTT], then press [DWN/] to transmit .
e Power Input 13.8 V DC cable Connect a 13.8 V DC power source here. Use the supplied DC power cable {pages 3, 4}. e UP/ key Press to raise the operating frequency, Memory Channel number, Menu Number, etc.
Hold down to repeat the action. Also press to switch between values for functions with multiple choices. Press and hold Mic [PTT], then press [UP/] to transmit . r SP (speaker) jack If desired, connect an optional external speaker for clearer audio. This jack accepts a 3.
5 mm (1/8") mono (2-conductor) plug. See page 6. 12 r CALL/A key Identical to the front panel CALL key. This key can be reprogrammed if desired {page 59}. Press and hold Mic [PTT], then press [CALL/A] to transmit A. MIC KEYPAD DIRECT ENTRY The microphone keypad (keypad models only) allows you to make various entries depending on which mode the transceiver is in. In VFO or Memory Recall mode, use the Mic keypad to select a frequency {page 16} or Memory Channel number {page 30}. First press the Mic PF key assigned the ENTER function {page 59}. t VFO/B key Identical to the front panel VFO key. This key can be reprogrammed if desired {page 59}.

Press and hold Mic [PTT], then press [VFO/B] to transmit B. 3 y MR/C key Identical to the front panel MR key. This key can be reprogrammed if desired {page 59}. Press and hold Mic [PTT], then press [MR/C] to transmit C. u PF/D key The default function of this key is 1 MHz step. This key can be reprogrammed if desired {page 59}. Press and hold Mic [PTT], then press [PF/D] to transmit D. To manually send a DTMF number, press and hold Mic [PTT], then press the DTMF keys on the Mic keypad {page 50} in sequence. i DTMF keypad This 16-key keypad is used for DTMF functions {page 50} or to directly enter an operating frequency {page 16}, or a Memory Channel number {page 30}. The keypad can also be used to program a Memory Channel name, Power-on message, or other character strings {page 63}.
You can also use the Mic keypad to program a Memory Channel name, Power-on message, or other character strings {page 63}. 13 OPERATING BASICS SWITCHING THE POWER ON/OFF 1 Press [ ] (Power) to switch the transceiver power ON. · A high pitched double beep sounds and a Power-on message {page 60} appears briefly, followed by the frequency and other indicators. ADJUSTING THE SQUELCH The purpose of Squelch is to mute the speaker when no signals are present. With the squelch level correctly set, you will hear sound only while actually receiving signals.
The higher the selected squelch level, the stronger the signals must be to receive. The appropriate squelch level depends on the ambient RF noise conditions. 1 Press [F], [REV]. · The current squelch level appears. 4 2 To switch the transceiver OFF, press [ ] (Power) (1s).
· When you turn the transceiver OFF, a low pitched double beep sounds. · The transceiver stores the current frequency and parameters when it is turned OFF and recalls these parameters the next time you turn the transceiver ON. 2 Turn the Tuning control to adjust the level. · Select the level at which the background noise is just eliminated when no signal is present. · The higher the level, the stronger the signals must be to receive. · 10 different levels can be set. (0: Minimum ~ 9: Maximum; 1 is the default value) ADJUSTING THE VOLUME Turn the Volume control clockwise to increase the audio output level and counterclockwise to decrease the output level. · If you are not receiving a signal, press the Mic PF key assigned the MONI function {page 59}, then adjust the Volume control to a comfortable audio output level. Press the MONI key again to cancel the Monitor function. 3 Press any key other than [ ] (Power) to store the new setting and exit the squelch adjustment.

14 TRANSMITTING 1 To transmit, hold the microphone approximately 5 cm (2 inches) from your mouth, then press and hold Mic [PTT] and speak into the microphone in your normal tone of voice. ·" " and the RF Power meter appears. The RF Power meter shows the relative transmit output power). (· If you press Mic [PTT] while you are outside the transmission coverage, a high pitched error beep sounds. 2 Press [MENU] and turn the Tuning control to select "H" (high; default) or "L" (low) power. 3 Press [MENU] to store the setting or any other key to cancel. 4 Press any key other than [MENU] to exit Menu Mode. Do not transmit at high output power for an extended period of time. The transceiver could overheat and malfunction. Continuous transmission causes the heat sink to overheat.

Never touch the heat sink when it may be hot. 4 2 When you finish speaking, release Mic [PTT]. Note: If you continuously transmit for longer than the time specified in Menu No. 21 (default is 10 minutes) {page 62}, the internal time-out timer generates a warning beep and the transceiver stops transmitting. In this case, release Mic [PTT] and let the transceiver cool down for a while, then press Mic [PTT] again to resume transmission.

Note: When the transceiver overheats because of ambient high temperature or continuous transmission, the protective circuit may function to lower transmit output power. SELECTING A FREQUENCY VFO MODE This is the basic mode for changing the operating frequency. To enter VFO Mode, press [VFO]. Turn the Tuning control clockwise to increase the frequency and counterclockwise to decrease the frequency, or use Mic [UP]/[DWN]. SELECTING AN OUTPUT POWER M4 market version only: The output power of M4 market models cannot be adjusted.

It is fixed at 25 W. You can configure different power levels for transmission. 1 Press [F], [MENU] and turn the Tuning control to select Menu No. 6 (TXP). · Press and hold Mic [UP]/[DWN] to step the frequency repeatedly. 15 MHZ MODE If the desired operating frequency is far away from the current frequency, it is quicker to use the MHz Tuning Mode. To adjust the MHz digit: 1 While in VFO or Call Mode, press [MENU]. · The MHz digit blinks. DIRECT FREQUENCY ENTRY In addition to turning the Tuning control or pressing Mic [UP]/[DWN], there is another way to select the frequency. When the desired frequency is far away from the current frequency, you can directly enter a frequency using the Mic keypad (keypad models only).

1 Press [VFO]. · You must be in VFO mode to make a direct frequency entry. 4 2 Press the Mic PF key assigned the ENTER function {page 59}. 2 Turn the Tuning control to select the desired MHz value. 3 Press any key to set the selected frequency and return to normal VFO Mode. 4 Continue adjusting the frequency as necessary, using the Tuning control or Mic [UP]/[DWN]. 3 Press the numeric keys ([0] to [9]) to enter your desired frequency. · Pressing Mic Enter fills all remaining digits (the digits you did not enter) with 0 and completes the entry. For example, to select 145.000 MHz, press [1], [4], [5] and press Mic Enter to complete the entry.

· If you want to revise the MHz digits only, leaving the kHz digits as they are, press Mic [VFO] in place of Mic Enter. 16 Example 1 To enter 145.750 MHz: Key in [Enter] [1], [4], [5] [7], [5], [0] Display 1 4 5. 1 4 5. 7 5 0 Note: If the entered frequency does not match the current frequency step size, the frequency is automatically rounded down to the next available frequency.

When the desired frequency cannot be entered exactly, confirm the frequency step size {page 56}. Example 2 To enter 145.000 MHz: Key in [Enter] [1], [4], [5] [Enter] Display 1 4 5. 1 4 5. 0 0 0 4 Example 3 To change 144.

650 MHz to 145.650 MHz: Key in [Enter] [1], [4], [5] Mic [VFO] Display 1 4 4. 6 5 0 1 4 5. 1 4 5. 6 5 0 17 MENU SETUP WHAT IS A MENU? Many functions on this transceiver are selected or configured via a software-controlled Menu rather than through the physical controls of the transceiver. Once you become familiar with the Menu system, you will appreciate its versatility. You can customize the various timings, settings, and programming functions on this transceiver to meet your needs without using many 5 controls and switches. 2 Turn the Tuning control to select your desired Menu. · As you change the Menu No., a brief explanation of each menu appears along with its current parameter.

MENU ACCESS 1 Press [F], [MENU]. · A brief explanation of the menu, and the setting and Menu No. appear on the display. 3 Press [MENU] to configure the parameter of the currently selected Menu No. 4 Turn the Tuning control to select your desired parameter. Menu Name Setting Menu Number 5 Press [MENU] to store the new setting or any other key to cancel. 6 Press any key other than [MENU] to exit Menu Mode. 18 MENU FUNCTION LIST On the display STP T CT DCS SFT TXP SSQ SQH OFFSET ARO PRI SCAN L.OUT M.CH M.

NAME MDF APO 1 Menu No . 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Function Frequency step size Tone frequency CTCSS frequency DCS code Shift direction Transmission power Programmable VFO S-Meter squelch Squelch hang time Repeater offset frequency Automatic Repeater Offset Priority Scan Scan Resume method Memory Channel Lockout Memory Channel capacity Memory Name Memory Name/ Frequency display Automatic Power-off Selections 2.5/ 5/ 6.25/ 10/ 12.5/ 15/ 20/ 25/ 30/ 50/ 100 kHz 67.

0 ~ 254.1 Hz 67.0 ~ 254.1 Hz 023 ~ 754 OFF/ +/ High/ Low 136 ~ 173 MHz ON/ OFF OFF/ 125/ 250/ 500 ms 0 ~ 69.95 MHz ON/ OFF ON/ OFF TO/ CO/ SE ON/ OFF 100/ 200 6 characters MN/ FRQ OFF/ 30/ 60/ 90/ 120/ 180 min.

Default Varies (see reference page) 88.5 88.5 023 OF F High 136 ~ 173 MHz OFF OFF 600 kHz Varies (see reference page) OF F TO OFF 100 MN OFF Ref. Page 56 24 47 48 23 15 61 54 55 23 25 43 45 44 28 32 32 54 5 P.VFO 19 On the display CK HLD TOT BCL P.ON.MSG BP 5 Menu No . 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 CALL key Function CALL/ 1750 ON/ OFF 3/ 5/ 10 min. ON/ OFF 6 characters ON/ OFF ON/ OFF ON/ OFF ON/ OFF Up to 16 digits FA/ SL ON/ OFF Selections Default Ref. Page 1750 Hz tone TX hold Time-out Timer Busy Channel Lockout Power-on message Beep Beat Shift Narrow FM Tuning control lock Automatic dialer DTMF TX speed DTMF TX hold DTMF pause period DTMF key lock DTMF monitor Microphone key lock Microphone programmable function key Varies (see 25,35 reference page) OFF 25 10 OFF ON OFF OF F OF F FA OF F 500 OF F OF F OFF MHZ 62 56 60 55 54 60 58 51 52 51 53 53 50 64 59 BS FMN ENC DTMF.

MR SPD DT.H PA DT.L DT.M MC.L PF 1 100/ 250/ 500/ 750/ 1000/ 1500/ 2000 ms ON/ OFF ON/ OFF ON/ OFF MONI/ ENTER/ 1750/ VFO/ MR/ CALL/ MHZ/ REV/ SQL/ M--V/ M.

IN/ C.IN/ MENU/ SHIFT/ LOW/ BRIGHT/ LOCK/ TONE/ STEP 20 On the display PF 2 Menu No . 36 Function Microphone programmable function key Microphone programmable function key Microphone programmable function key Data TX speed Display brightness Automatic display brightness Weather Alert Reset selection Selections MONI/ ENTER/ 1750/ VFO/ MR/ CALL/ MHZ/ REV/ SQL/ M--V/ M.IN/ C.IN/ MENU/ SHIFT/ LOW/ BRIGHT/ LOCK/ TONE/ STEP MONI/ ENTER/ 1750/ VFO/ MR/ CALL/ MHZ/ REV/ SQL/ M--V/ M.

IN/ C.IN/ MENU/ SHIFT/ LOW/ BRIGHT/ LOCK/ TONE/ STEP MONI/ ENTER/ 1750/ VFO/ MR/ CALL/ MHZ/ REV/ SQL/ M--V/ M.IN/ C.IN/ MENU/ SHIFT/ LOW/ BRIGHT/ LOCK/ TONE/ STEP 1200/ 9600 bps -- ON/ OFF ON/ OFF VFO/ FULL Default Ref. Page 59 MR PF 3 37 VFO 59 PF 4 DT BRIGHT ABR WXA 2 38 39 40 41 42 99 CALL 1200 Maximum level OF F OFF VFO 59 58 57 57 36 67 5 RESET 1 2 TXP (Transmission power) cannot be adjusted on M4 market models.

It is fixed at "H" (High: 25 W). WXA (Weather Alert) is available only for K market models. 21 OPERATING THROUGH REPEATERS Repeaters, which are often installed and maintained by radio clubs, are usually located on mountain tops or other elevated locations. They generally operate at higher ERP (Effective Radiated Power) than a typical station. This combination of elevation and high ERP allows communications over much greater distances than communicating without using repeaters.

Most repeaters use a receive and transmit frequency pair with a standard or non-standard offset (odd-split). In addition, some repeaters must receive a tone from the transceiver to be accessed. For details, consult your 6 local repeater reference. OFFSET PROGRAMMING FLOW q Select a receive frequency. w Select an offset direction. e Select an offset frequency (only when programming odd-split repeater frequencies). r Activate the Tone function (if necessary). t Select a tone frequency (if necessary). If you store all the above data in a Memory Channel, you will not need to reprogram the parameters every time. Refer to "MEMORY CHANNELS" {page 28}.

TX: 144.725 MHz TX tone: 88.5 Hz RX: 145.325 MHz TX: 144.725 MHz TX tone: 88.5 Hz RX: 145.325 MHz 22 PROGRAMMING AN OFFSET You must first select an amateur radio repeater downlink frequency as described in "SELECTING AN OFFSET FREQUENCY". SELECTING AN OFFSET FREQUENCY To access a repeater which requires an odd-split frequency pair, change the offset frequency from the default which is used by most repeaters. The default offset frequency is 600 kHz. 1 Press [F], [MENU] and turn the Tuning control to select Menu No.

10 (OFFSET). 2 Press [MENU] and turn the Tuning control to select the appropriate offset frequency. SELECTING AN OFFSET DIRECTION Select whether the transmit frequency will be higher (+) or lower ( ) than the receive frequency. 1 Press [F], [MENU] and turn the Tuning control to select Menu No. 5 (SFT).

2 Press [MENU] and turn the Tuning control to select "+" or "". 3 Press [MENU] to store the setting or any other key to cancel. 4 Press any key other than [MENU] to exit Menu Mode. · "+" or "" appears above the frequency, indicating which offset direction is selected. 6 · The selectable range is from 0.

00 MHz to 69.95 MHz in steps of 50 kHz. 3 Press [MENU] to store the setting or any other key to cancel. 4 Press any key other than [MENU] to exit Menu Mode. Note: After changing the offset frequency, the new offset frequency will also be used by Automatic Repeater Offset. If the offset transmit frequency falls outside the allowable range, transmission is inhibited. In this case, adjust the reception frequency so that the transmit frequency is within the band limits or change the offset direction. Note: While using an odd-split memory channel or transmitting, you cannot change the offset direction. 23 ACTIVATING THE TONE FUNCTION To activate Tone, press [F], [CALL]. · As you press [F], [CALL], the selection cycles as follows: "OFF" "TONE" "CTCSS" "DCS" "OFF".

· "T" appears on the upper part of display, indicating that the Tone function is activated. 3 Press [MENU] to store the setting or any other key to cancel. 4 Press any key other than [MENU] to exit Menu Mode. Available Tone Frequencies 42 Tone Frequencies (Hz) 67.0 69.3 71.9 74.4 77.0 79.7 82.

5 85.4 88.5 91.5 94.8 97.

4 100.0 103.5 107.2 110.9 114.

8 118.8 123.0 127.3 131.8 136.5 141.3 146.2 151.4 156.7 162.

2 167.9 173.8 179.9 186.2 192.8 203.5 206.5 210.7 218.1 225.

7 229.1 233.6 241.8 250.3 254.

1 6 Note: You cannot use the Tone function and CTCSS/ DCS functions simultaneously. Switching the Tone function ON after having activated the CTCSS/ DCS functions deactivates the CTCSS/ DCS functions. E market version only: When you access repeaters that require a 1750 Hz tone, you do not need to activate the Tone function. Simply press [CALL] without pressing Mic [PTT] to transmit a 1750 Hz tone (default setting). SELECTING A TONE FREQUENCY 1 Press [F], [MENU] and turn the Tuning control to select Menu No.

2 (T). 2 Press [MENU] and turn the Tuning control to select the desired tone frequency (default is 88.5 Hz). Note: 42 different tones are available for the transceiver. These 42 tones includes 37 EIA standard tones and 5 non-standard tones. E market version only: To transmit a 1750 Hz tone, simply press [CALL] without pressing Mic [PTT] (default setting). Release [CALL] to quit transmitting. You can also make the transceiver remain in the transmit mode for 2 seconds after releasing [CALL]; a 1750 Hz tone is not continuously transmitted. Access Menu No. 20 (HLD) and select "ON".

To use [CALL] for recalling the Call Channel in place of transmitting a 1750 Hz tone, access Menu No. 19 (CK) and select "CALL". 24 AUTOMATIC REPEATER OFFSET This function automatically selects an offset direction, according to the frequency on the VHF band. The transceiver is programmed for an offset direction as shown below. To obtain an up-to-date band plan for repeater offset direction, contact your national Amateur Radio association. TRANSMITTING A 1750 Hz TONE Call Channel default settings: · On E market models, pressing [CALL] causes the transceiver to transmit a 1750 Hz tone. · On K and M market models, pressing [CALL] changes the transceiver to the Call Channel {page 35}. K market version only 144.0 145.5 146.

4 147.0 147.6 145.1 146.0 146.

6 147.4 148.0 MHz S S + S + S Most of the repeaters in Europe require the transceiver to transmit a 1750 Hz tone. To change the setting of the CALL key: 1 Press [F], [MENU] and turn the Tuning control to select Menu No. 19 (CK).

2 Press [MENU] and turn the Tuning control to select "CALL" or "1750". 3 Press [MENU] to store the setting or any other key to cancel. 4 Press any key other than [MENU] to exit Menu Mode. Some repeaters in Europe must receive continuous signals for a certain period of time, following a 1750 Hz tone.

This transceiver is also capable of remaining in the transmit mode for 2 seconds after transmitting the tone. 1 Press [F], [MENU] and turn the Tuning control to select Menu No. 20 (HLD). 2 Press [MENU] and turn the Tuning control to select "ON" or "OFF" (default). 3 Press [MENU] to store the setting or any other key to cancel. 4 Press any key other than [MENU] to exit Menu Mode.

25 S: Simplex This complies with the standard ARRL band plan. 6 E market version only 144.0 S S: Simplex 145.6 145.8 146.0 MHz S Note: Automatic Repeater Offset does not function when the Reverse function is ON. However, pressing [REV] after Automatic Repeater Offset has selected an offset (split) status, exchanges the receive and transmit frequencies. 1 Press [F], [MENU] and turn the Tuning control to select Menu No. 11 (ARO). 2 Press [MENU] and turn the Tuning control to switch the function "ON" (default) or "OFF".
3 Press [MENU] to store the setting or any other key to cancel. 4 Press any key other than [MENU] to exit Menu Mode. REVERSE FUNCTION The reverse function exchanges a separate reception and transmission frequency. So, while using a repeater, you can manually check the strength of a signal that you receive directly from the other station. If the station's signal is strong, both stations should move to a simplex frequency and free up the repeater.
MH z 25 5.3 14 Note: You can turn the Reverse function ON when you are operating in Simplex Mode. However, it does not change the Transmission/ Reception frequencies. If pressing [REV] places the reception frequency outside the allowable range, an error tone sounds and the function does not operate. If pressing [REV] places the transmission frequency outside the allowable range, pressing Mic [PTT] causes an error tone to sound and transmission is inhibited.
You cannot switch Reverse ON or OFF while transmitting. 14 4.7 25 AUTOMATIC SIMPLEX CHECK (ASC) 144.725 MHz REV ON z MH 6 TX: 144.725 MHz TX: 144.725 MHz TX: 144.725 MHz TX: 145.325 MHz RX: 145.325 MHz RX: 145.325 MHz RX: 145.

325 MHz RX: 144.725 MHz While using a repeater, the ASC function periodically checks the strength of the signal you are receiving from the other station. If the station's signal is strong enough to allow direct contact without a repeater, the " " indicator starts blinking. Press [REV] (1s) to switch the function ON (or OFF). ·" " appears when the function is ON. " blinks. · While direct contact is possible, " To swap the transmission and reception frequencies: Press [REV] to switch the Reverse function ON (or OFF). · "R" appears when the function is ON. 26 Note: Pressing [PTT] causes the " " icon to quit blinking. ASC can be activated while operating in Simplex Mode.
However, it does not change the Transmission/Reception frequencies. ASC does not function while scanning. Activating ASC while using Reverse switches Reverse OFF. If you recall a Memory Channel or the Call Channel that contains a Reverse ON status, ASC is switched OFF. ASC causes received audio to be momentarily intermitted every 3 seconds.
· To quit the function, press any key. · When the tone frequency is identified, a beep sounds and the identified frequency blinks. TONE FREQUENCY ID SCAN This function scans through all tone frequencies to identify the incoming tone frequency on a received signal. You can use this function to determine which tone frequency is required by accessing your local repeater. 1 Press [F], [MENU] and turn the Tuning control to select Menu No.
2 (T). 2 Press [MENU] (1s) to start the Tone Frequency ID Scan. 3 Press [MENU] to program the identified tone frequency in place of the current tone frequency or press any other key to exit the Tone Frequency ID Scan. · Turn the Tuning control while the identified tone frequency is blinking to resume scanning. 6 4 Press any key other than [MENU] to exit Menu Mode. Note: Some repeaters do not re-transmit the access tone in the download signal. In this case, check the other station's uplink signal to detect the repeater access tone. The transceiver continues to check the Weather Alert Channel and Priority Channel during Tone Frequency ID Scan. · When the transceiver receives a signal, scan starts. The decimal point blinks during scan.

· While the transceiver is receiving a signal during Tone Frequency ID Scan, the signal is emitted from the speaker. · To reverse the scan direction, turn the Tuning control. 27 MEMORY CHANNELS In Memory Channels, you can store frequencies and related data that you frequently use so that you do not need to reprogram that data every time. You can quickly recall a programmed channel through simple operation. A total of 200 Memory Channels (100 when using the Memory Name function) are available for storing frequencies, modes, and other operating conditions. 4 Press [MENU] to accept or press any other key to cancel. Note: If you change the Memory Channel capacity from 200 channels to 100 channels after having stored data in channels 100 to 199, all Memory Channel data in channels 100 to 199 will be erased. If you change the Memory Channel capacity from 100 channels to 200 channels after storing Memory Names in those channels, the Memory Name data will be erased. NUMBER OF MEMORY CHANNELS The transceiver must be configured to either 200 Memory Channels without using the Memory Name function or 100 Memory Channels with the Memory 7 Name function (default). To change the Memory Channel capacity: 1 Press [F], [MENU] and turn the Tuning control to select Menu No.
15 (M.CH). 2 Press [MENU] and turn the Tuning control to select either "100" (default) or "200". SIMPLEX & REPEATER OR ODD-SPLIT MEMORY CHANNEL? You can use each Memory Channel as a simplex & repeater channel or an odd-split channel. Store only 1 frequency to use as a simplex & repeater channel or 2 separate frequencies to use as an odd-split channel.
Select either application for each channel depending on the operations you have in mind. Simplex & repeater channels allow: · Simplex frequency operation · Repeater operation with a standard offset (if an offset direction is stored) Odd-split channels allow: 3 Press [MENU]. · "SURE ?" appears. · Repeater operation with a non-standard offset Note: Not only can you store data in Memory Channels, but you can also overwrite existing data with new data. 28 The data listed below can be stored in each Memory Channel: Parameter Receive frequency Transmit frequency Tone frequency Tone ON CTCSS frequency CTCSS ON DCS code DCS ON Offset direction Offset frequency Reverse ON Frequency step size Narrow band FM Beat Shift Memory Channel lockout Memory Channel name Yes: Can be stored in memory.
N/A: Cannot be stored in memory. Simplex & Repeater Yes Ye s Ye s Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Odd-Split Yes Ye s Yes Yes Yes Yes Yes Yes N/A N/A N/A Yes Yes Yes Yes Yes Note: Memory Channel Lockout cannot be set to the Program Scan Memory (L0/U0 ~ L2/U2), the Priority Channel (Pr), or the Weather Alert Channel (AL).

Tone, CTCSS, and DCS are automatically turned OFF when setting up the Weather Alert Channel (AL). STORING SIMPLEX FREQUENCIES OR STANDARD REPEATER FREQUENCIES 1 Press [VFO]. 2 Turn the Tuning control to select your desired frequency. · You can also directly enter a desired frequency using the keypad {page 13}. 3 If storing a standard repeater frequency, select the following data: · Offset direction {page 23} · Tone function, if necessary {page 24} · CTCSS/ DCS function, if necessary {pages 46, 48} 7 If storing a simplex frequency, you may select other related data (CTCSS or DCS settings, etc.). 4 Press [F]. · A Memory Channel number appears and blinks.

·" " appears if the channel contains data. 29 · Memory Channel numbers L0/U0 ~ L2/U2 {page 40}, Pr {page 43}, and AL (Weather Alert) {page 36} (K market models only) are reserved for other functions. 5 Turn the Tuning control or press Mic [UP]/[DWN] to select the Memory Channel in which you want to store the data. 6 Press [MR] to store the data to the channel. STORING ODD-SPLIT REPEATER FREQUENCIES Some repeaters use a pair of reception and transmission frequencies with a non-standard offset. If you store 2 separate frequencies in a Memory Channel, you can operate on those repeaters without programming the offset frequency and direction. 7 Note: When you recall an odd-split Memory Channel, "+" and "" appear on the display. To confirm the transmission frequency, press [REV]. Transmit offset status and reverse status are not stored in odd-split Memory Channels. RECALLING A MEMORY CHANNEL USING THE TUNING CONTROL 1 Press [MR] to enter Memory Recall mode.
· The Memory Channel last used is recalled. 1 Store the desired reception frequency and related data by following steps 1 to 6 given for simplex or standard repeater frequencies {page 29}. 2 Turn the Tuning control or press Mic [UP]/[DWN] to select your desired transmission frequency. 3 Press [F]. 4 Turn the Tuning control or press Mic [UP]/[DWN] to select the pre-programmed reception Memory Channel in which you want to store the data.
5 Press [MR] (1s). · The transmission frequency is stored in the Memory Channel. 2 Turn the Tuning control to select your desired Memory Channel. · You cannot recall an empty Memory Channel. · To restore VFO mode, press [VFO].
30 USING THE MICROPHONE KEYPAD You can also recall a Memory Channel by entering a desired Memory Channel number with the microphone keypad. 1 Press [MR] to enter Memory Recall mode. 2 Press the microphone key assigned the ENTER function. 3 Enter the channel number using the microphone keypad. · For single-digit channel numbers, enter "0" first or press Mic Enter after entering the channel number. · For two-digit channel numbers that begin with "1", press Mic Enter after entering the channel number. Note: You cannot recall an empty Memory Channel. An error beep sounds. You cannot recall the Program Scan Memory Channels (L0/U0 ~ L2/U2), the Priority Channel (Pr), and the Weather Alert Channel (AL) (K market models only) using the numeric keypad. When you recall an odd-split memory channel, "+" and "" appear on the display.

Press [REV] to display the transmission frequency. After recalling a Memory Channel, you may modify data such as Narrow Band, Tone, or CTCSS. However, these settings are cleared once you select another channel or the VFO Mode. @@2 Press [OFF. @@@@@@@@@@@@@@@@15 (M.CH) {page 28}. @@2 Press [F], [MENU] and turn the Tuning control to select Menu No. @@To delete the character at the current cursor position, press [F]. 6 Repeat steps 4 and 5 to enter up to 6 digits. 7 Press [MENU] to complete the entry.
· Press any key other than [MR], [VFO], [F], and [MENU] to cancel the entry. @@@@However, you can still display the operating frequency, if desired. To display the frequency rather than Memory Name, access Menu No. 17 (MDF) and select "FRQ". @@@@ You can overwrite stored names by repeating steps 1 to 8.
@@@@@@@@@@@@@@@@@@@@@@The AL Channel is available for K market models only. @@@@@@@@In this case, Call Scan {page 43} will be useful. @@@@@@@@ Transmit offset status and Reverse status are not stored in an odd-split Call Channel. 4 Turn the Tuning control or press Mic [UP]/[DWN] to select the Alert Channel ("AL"). 5 Press [MR].
Weather Radio Frequencies (MHz) WX1 WX2 WX3 WX4 WX5 WX6 WX7 WEATHER ALERT (K MARKET MODELS ONLY) Any of the NOAA Weather Radio channels can be programmed to the AL memory channel of the transceiver. The transceiver can be configured to check the NOAA Weather Alert tone (1050 Hz) and will automatically alert you by recalling and monitoring the Weather Radio frequency when the Weather Alert tone is broadcasted, and the "WX" icon will blink. 7 162.550 162.400 162.475 162.425 162.450 162.500 162.525 Note: When you perform Full Reset {page 63}, the Weather Radio frequency recovers the factory default frequency (162.

550 MHz). When you clear the Weather Radio (AL) Channel {page 31} (the same as clearing a Memory Channel), the factory default frequency (162.550 MHz) will not be recovered. The Weather Radio (AL) Channel can be programmed with a Channel Name {page 32}. You can also transfer the AL Memory Channel data to the VFO or another Memory Channel. PROGRAMMING THE WEATHER RADIO FREQUENCY The transceiver is preprogrammed to 162.550 MHz (WX1). You can store a different frequency to the AL channel to use this function. Refer to the NOAA channel frequency directory for your local weather channel frequency before you use the Weather Alert function. The latest Weather Radio information can be obtained from http://www. nws.noaa.gov/nwr/. 1 Press [VFO]. 2 Select your local NOAA Weather Radio channel frequency using the Tuning control or Mic [UP]/ [DWN].
3 Press [F]. · A Memory Channel number appears and blinks. ENABLING A WEATHER ALERT You can monitor the Weather Radio frequency continuously or in the background while receiving on another frequency. To monitor the Weather Radio frequency continuously: 1 Press [F], [MENU] and turn the Tuning control to select Menu No. 42 (WXA).
2 Press [MENU] and turn the Tuning control to select "ON" or "OFF" (default). 3 Press [MENU] to store the setting. · "WX" appears on the display. 36 4 Press any key other than [MENU] to exit Menu Mode. · The transceiver automatically changes to the AL channel. · The Tone, CTCSS, and DCS functions cannot be configured to the AL channel. · Priority Scan is set to OFF automatically when the Weather Alert function is turned ON. Note: The transceiver checks the Weather Alert tone once every second while you are monitoring another frequency or channel. When a 1050 Hz tone is detected, the display will change to the AL channel, the Weather Alert tone sounds, and the "WX" icon blinks.

Squelch remains open until the frequency is changed or the transceiver power is turned OFF.

If the transceiver is transmitting or receiving a signal on another frequency, the Weather Alert function temporarily pauses. Turning the Beep function "OFF" does not disable the Weather Alert tone. @@42 (WXA), and set it to "OFF" (default). @@@@@@@@@@@@@@@@@@@@If the tone or code matches, the transceiver unmutes. Otherwise, it resumes scanning. Press and hold the Mic PF key programmed as MONI {page 59} to pause scan in order to monitor the scanning frequency. Release the key to resume scanning. Pressing and holding Mic [PTT] causes scan to stop (excluding Priority Scan). While scanning, you can change the scan frequency direction by turning the Tuning control or using the Mic [UP]/[DWN] keys. Starting scan switches OFF the Automatic Simplex Check (ASC) {page 26}.

Adjust the Squelch level before using Scan {page 14}. Selecting a Squelch level too low could cause Scan to stop immediately. Memory Scan All-Channel Scans all Memory Channels Scan from 0 to 199 (or from 0 to 99). Scans Memory Channels in Group Scan groups of 20 channels (0 ~ 19, 20 ~ 39, 40 ~ 59, etc.).

VFO Memory Channel Scans the Call Channel and the current VFO frequency. Scans the Call Channel and the selected Memory Channel. Checks the activities on the Priority Channel (Pr) every 3 seconds. 8 Call Scan Priority Scan 39 NORMAL SCAN When you are operating the transceiver in VFO Mode, 3 types of scanning are available: Band Scan, Program Scan, and MHz Scan. PROGRAM SCAN You can limit the scanning frequency range.

There are 3 memory channel pairs (L0/U0 ~ L2/U2) available for specifying the start and end frequencies. Program Scan monitors the range between the start and end frequencies that you have stored in these Memory Channels. Before performing Program Scan, store the Program Scan frequency range to one of the Memory Channel pairs (L0/U0 ~ L2/U2). Storing a Program Scan Frequency Range 1 Press [VFO] and turn the Tuning control or press Mic [UP]/[DWN] to select your desired start frequency. 2 Press [F]. · A Memory Channel number appears and blinks. BAND SCAN The transceiver scans the entire band of the frequency you selected. For example, if you are operating and receiving at 144.525 MHz, it scans all the frequencies available for the VHF band. (Refer to receiver VFO frequency range in the specifications {page 72}.

) When the current VFO receive frequency is outside the Program Scan frequency range {below}, the transceiver scans the entire frequency range available for the current VFO. 1 Press [VFO] and turn the Tuning control or press Mic [UP]/[DWN] to select a frequency outside of the Program Scan frequency range. 2 Press [VFO] (1s) to start Band Scan. · Scan starts from the current frequency. · The 1 MHz decimal blinks while scanning is in progress. 8 3 Turn the Tuning control or press Mic [UP]/[DWN] to select a Memory Channel from L0 ~ L2. 3 Press any key other than [F] or [Band Scan.] (Power) to stop 4 Press [MR] to store the start frequency in the Memory Channel. 5 Turn the Tuning control to select your desired end frequency. 6 Press [F].

Note: The transceiver scans the frequency range that is stored in Menu No. 7 (P.VFO) {page 61}. If you select a frequency within the L0/U0 ~ L2/U2 range in step 2, Program Scan starts. 40 7 Turn the Tuning control or press Mic [UP]/[DWN] to select a matching Memory Channel from U0 ~ U2.

· For example, if you have selected "L0" in step 3, select Memory Channel "U0". MHZ SCAN MHz Scan allows you to scan an entire 1 MHz frequency range within the current VFO frequency. 1 Press [VFO] and turn the Tuning control or press Mic [UP]/[DWN] to select a frequency in which to perform MHz Scan. · If you want to scan the entire 145 MHz frequency, select any frequency between 145.000 and 145.

9975 MHz (for example, select 145.650 MHz). Scan will operate between 145.000 MHz and 145.9975 MHz. (The upper frequency limit depends on the current frequency step size.) 8 Press [MR] to store the end frequency in the Memory Channel. Performing Program Scan 1 Press [VFO] and turn the Tuning control to select a frequency within the frequency range of Memory Channel L0/U0 ~ L2/U2. 2 Press [VFO] (1s) to start Program Scan. · Scan starts from the current frequency.

· The 1 MHz decimal blinks while scanning is in progress. 2 Press [MENU] (1s) to start MHz Scan. · Scan starts from the current frequency. · The 1 MHz decimal blinks while scanning is in progress. 8 3 Press any key other than [F] or [stop Program Scan.] (Power) to 3 Press any key other than [F] or [MHz Scan.] (Power) to stop Note: The transceiver stops scanning when it detects a signal. If more than 2 Program Scan channel pairs are stored and overlaps the frequency range among the pairs, the smaller Program Scan Memory Channel number has priority. If the step size of the current VFO frequency is different from that of the programmed frequencies, VFO Scan begins instead of Program Scan. To perform Program Scan, the "L" channel must be lower than the "U" channel.

Otherwise, Band Scan starts {page 40}. 41 MEMORY SCAN Memory Scan monitors Memory Channels in which you have stored frequencies. 1 Press [MR] and turn the Tuning control or press Mic [UP]/[DWN] to select a Memory Channel in the range of the group you want to scan. 2 Press [MENU] (1s). · Scan starts from the selected Memory Channel number and ascends up through the channel numbers (default).

· To reverse the scan direction, turn the Tuning control or press Mic [UP]/[DWN]. ALL-CHANNEL SCAN The transceiver scans all of the Memory Channels in which you have stored frequencies. 1 Press [MR] (1s). · Scan starts from the last Memory Channel number and ascends up through the channel numbers (default). · To jump to a desired channel while scanning, quickly turn the Tuning control.

· To reverse the scan direction, turn the Tuning control or press Mic [UP]/[DWN]. 3 Press any key other than [F] or [Group Scan.] (Power) to stop Note: You must have 2 or more Memory Channels in the selected group that contain data. 100 Channels Group 1: 0 ~ 19 Group 2: 20 ~ 39 Group 3: 40 ~ 59 Group 4: 60 ~ 79 Group 5: 80 ~ 99 200 Channels Group 1: 0 ~ 19 Group 2: 20 ~ 39 Group 3: 40 ~ 59 Group 4: 60 ~ 79 Group 5: 80 ~ 99 Group 6: 100 ~ 119 Group 7: 120 ~ 139 Group 8: 140 ~ 159 Group 9: 160 ~ 179 Group 10: 180 ~ 199 8 2 Press any key other than [F] or [All-Channel Scan.] (Power) to stop Note: You must have 2 or more Memory Channels that contain data, excluding special function Memory Channels (L0/U0 ~ L3/U3, Pr, and AL). You can perform Memory Scan while in CH Display Mode. While Scan is paused, the Channel number blinks. GROUP SCAN The transceiver scans Memory Channels in groups of 20 channels.

When Menu No. 15 (M.

CH) is set to 100, the transceiver uses 5 groups of 20 channels. When Menu No. 15 (M.CH) is set to 200, the transceiver uses 10 groups of 20 channels. 42 CALL SCAN You can alternate between monitoring the Call Channel and the current operating frequency. 1 Select the frequency (in VFO or Memory Recall Mode) you want to monitor. · In VFO Mode, turn the Tuning control or press Mic [UP]/ [DWN] to select the desired frequency. · In Memory Recall Mode, turn the Tuning control or press Mic [UP]/[DWN] to select the Memory Channel you want to monitor. PRIORITY SCAN You may sometimes want to check your favorite frequency activities while monitoring other frequencies. In this case, use the Priority Scan function.

Priority Scan checks the activities of the Priority Channel every 3 seconds. If the transceiver detects a signal on the Priority Channel, it recalls the frequency to the VFO. PROGRAMMING A PRIORITY CHANNEL 1 Press [VFO] and turn the Tuning control or press Mic [UP]/[DWN] to select your desired Priority Channel frequency. 2 Select selective call functions, if necessary. 3 Press [F].

· The Memory Channel number appears and blinks. 2 Press [CALL] (1s) to start the Call Scan. · The Call Channel and the selected VFO frequency or memory channel are monitored. · The 1 MHz decimal blinks while scanning is in progress. 3 Press any key other than [F] or [Call Scan.

] (Power) to stop Note: You must configure the CALL key function to "CALL" (Menu No. 19) prior to using Call Scan. Otherwise, a 1750 Hz tone will be transmitted. You can perform Call Scan even if the recalled Memory Channel has been locked out {page 44}. 4 Turn the Tuning control or press Mic [UP]/[DWN] to select the Priority Channel ("Pr"). 8 5 Press [MR] to store the data on the Priority Channel. 43 USING PRIORITY SCAN 1 Press [F], [MENU] and turn the Tuning control to select Menu No. 12 (PRI). 2 Press [MENU] and turn the Tuning control to select "ON" or "OFF" (default). 3 Press [MENU] to store the setting or any other key to cancel.

· "PRI" appears. MEMORY CHANNEL LOCKOUT You can lock out Memory Channels that you prefer not to monitor during Memory Scan or Group Scan {page 42}. 1 Press [MR] and turn the Tuning control or press Mic [UP]/[DWN] to select the Memory Channel to be locked out. 2 Press [F], [MENU] and turn the Tuning control to select Menu No. 14 (L.OUT). 3 Press [MENU] and turn the Tuning control to select "ON" or "OFF" (default). 4 Press any key other than [MENU] to exit Menu Mode. 8 · The transceiver checks for a signal on the Priority Channel every 3 seconds. · When the transceiver detects a signal on the Priority Channel, "Pr" blinks and the frequency changes to the Priority Channel.

· If you do not operate any control or key for 3 seconds after the signal drops, the transceiver returns to the original frequency and resumes Priority Scan. Note: If you clear the Priority Channel {page 31}, Priority Scan stops. Priority Scan temporarily stops while the transceiver is transmitting. If Priority Scan is set to ON, the Weather Alert function is automatically turned OFF. Memory Channel Number 4 Press [MENU] to store the setting or any other key to cancel. 5 Press any key other than [MENU] to exit Menu Mode. · The " " icon appears below the Memory Channel number, indicating the channel is locked out. 6 To unlock the Memory Channel, repeat steps 1 ~ 5, selecting "OFF" in step 3. · The " " icon disappears. Note: The Program Scan channels (L0/U0 ~ L2/U2), Call Channel, Priority Channel (Pr), and Weather Radio Channel (AL) (K market models only) cannot be locked out.

Even if a Memory Channel is locked out, you can perform Call Scan {page 43} between the Call Channel and Memory Channel. 44 SCAN RESUME METHOD The transceiver stops scanning at the frequency (or Memory Channel) where a signal is detected. It then continues or stops scanning according to which Resume Mode you have selected. · Time-Operated Mode (default) The transceiver remains on a busy frequency (or Memory Channel) for approximately 5 seconds, then continues to scan even if the signal is still present. Carrier-Operated Mode The transceiver remains on a busy frequency (or Memory Channel) until the signal drops out. There is a 2-second delay between signal dropout and scan resumption. Seek Mode The transceiver moves to a frequency (or Memory Channel) where a signal is present and stops. 3 Press [MENU] to store the new setting or any other key to cancel. 4 Press any key other than [MENU] to exit Menu Mode. Note: To temporarily stop scanning and monitor weak signals, press the Mic PF key assigned the MONI function {page 59}.

Press the MONI key again to resume scanning. · · 8 To change the scan resume method: 1 Press [F], [MENU] and turn the Tuning control to select Menu No. 13 (SCAN). 2 Press [MENU] and turn the Tuning control to select "TO" (Time-Operated; default), "CO" (CarrierOperated), or "SE" (Seek) Mode. 45 SELECTIVE CALL CTCSS AND DCS You may sometimes want to hear calls from only specific persons or groups. In this case, use Selective Call. This transceiver is equipped with CTCSS (Continuous Tone Coded Squelch System) and DCS (Digital Coded Squelch). These Selective Calls allow you to ignore (not hear) unwanted calls from other persons who are using the same frequency. The transceiver unmutes only when it receives a signal having the same CTCSS tone or DCS code. Note: CTCSS and DCS do not cause your conversation to be private or scrambled.

It only relieves you from listening to unwanted conversations. CTCSS A CTCSS tone is a sub-audible tone and is selectable from among the 42 tone frequencies listed in the table on page 47. The list includes 37 EIA standard tones and 5 non-standard tones. To activate CTCSS, press [F], [CALL]. · As you press [F], [CALL], the selection cycles as follows: "OFF" "TONE" "CTCSS" "DCS" "OFF".

· "CT" appears on the upper part of display, indicating that the CTCSS function is activated. TM-271 d ive ce Re CTCSS freq.: 82.5 Hz 9 TM-271 TM-271 Reje CTCSS freq.: 82.

5 Hz Re jec ted When CTCSS is ON, you will hear calls only when the selected CTCSS tone is received. To answer the call, press and hold Mic [PTT], then speak into the microphone. Note: You cannot use the CTCSS and Tone/ DCS functions simultaneously. Switching the CTCSS function ON after having activated the Tone/ DCS functions deactivates the Tone/ DCS functions. If you select a high CTCSS frequency, receiving audio or noise that contains the same frequency portions may cause CTCSS to function incorrectly. To prevent noise from causing this problem, select an appropriate squelch level {page 14}.